

THE APHID GENUS *PSEUDCEPAMEIBAPHIS*¹BY G. F. KNOWLTON AND C. F. SMITH²

This study is based upon an examination of approximately six hundred specimens, comprising five species.

Gillette and Palmer. Ann. Ent. Soc. Amer. 25: 145. 1932.

The genus *Pseudcepameibaphis* Gillette and Palmer may be characterized as: Vertex nearly flat; frontal tubercles absent; ocular tubercles rudimentary; fan-shaped to blunt hairs; cornicles slender, slightly swollen distally on inner side, impinged against abdomen, and with thin-edged flange set obliquely; cauda rather conical; wing venation as in the genus *Aphis*. Genotype *Aphis tridentata* Wilson.

KEY TO APTERA

- A.—Hind tibiæ less than $2 \times$ unguis; unguis more than $2\frac{1}{2} \times$ base *glauca*
 AA.—Hind tibiæ more than $2 \times$ unguis; unguis less than $2\frac{1}{2} \times$ base.
 B.—Unguis 2 or more times III *essigi* n. sp.
 BB.—Unguis less than $2 \times$ III.
 C.—Cornicles less than $2\frac{1}{2} \times$ III *tridentata*
 CC.—Cornicles more than $2\frac{1}{2} \times$ III.
 D.—Cauda not longer than rostral IV + V; abdominal segment VIII nearly covering cauda *xenotrichis* n. sp.
 DD.—Cauda longer than rostral IV + V; cauda visible from above *zavillis* n. sp.

Pseudcepameibaphis tridentata (Wilson)

Wilson, Trans. Amer. Ent. Soc. 51: 94-95, 1915.

Alate vivipara.—Body 0.86 to 1.2 mm. long to base of cauda; antennæ 0.8 to 1.02; antennal III, 0.15 to 0.17 mm. long and bearing 3 to 5 oval sensoria; IV, 0.11 to 0.17; V, 0.13 to 0.17; VI, 0.1 to 0.11 + 0.22 to 0.28; rostrum attaining second coxæ; rostral IV + V, 0.125; hind tibiæ 0.53 to 0.62; hind tarsi 0.049 to 0.125; cornicles 0.17 to 0.22; cauda 0.078 to 0.094 mm. long.

Apterous vivipara.—Body 1.16 to 1.36 mm. long to base of cauda

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and bearing numerous blunt to flattened hairs 0.031 to 0.053 mm. long on the abdomen; hairs on vertex 0.034 to 0.094; antennæ 0.66 to 0.85; antennal III, 0.11 to 0.16; IV, 0.09 to 0.14; V, 0.1 to 0.157; VI, 0.08 to 0.11 plus 0.17 to 0.25; rostrum nearly attaining third coxæ; rostral IV + V needle-like, 0.11 to 0.14; tibial hairs pointed to blunt on the outer side and 0.045 to 0.056; tibial hairs on the inner side pointed and 0.024 to 0.04 mm. long; hind tibiæ 0.38 to 0.62; hind tarsi 0.1 to 0.14; cornicles pale, 0.21 to 0.28; cauda 0.08 to 0.125 mm. long.

Taxonomy.—*P. tridentata* differs from *P. glauca* in having body hairs more flattened and more numerous; in having tibiæ more than twice unguis; longer body hairs; and in having unguis less than twice antennal III.

Collections.—All collections were on *Artemisia*, the usual species being *tridentata*. Amalga, May 12, 1928; Beaver Dam, May 25 and June 3, 1927; Blue Creek, May 25, 1927; Blue Springs Hills, May 19, 1930; Butlerville, April 25, 1936; Camp Williams, May 9, 1936; Cedar Fort, May 10, 1936; Cedar Valley, May 12, 1936; Chester, May 7, 1927; Collinston, May 12, 1930, and June 3, 1927; Deweyville, April 28, 1927; Ephraim, May 7, 1927; Fillmore, April 28, 1935; Hansel's Mountains, May 19, 1930; Honeyville, April 28, 1927; Howell, May 25, 1927; Juab, April 28, 1935; Lampo, May 25, 1927; Lewiston, May 25, 1935; Levan, May 13, 1936; Logan Canyon, July 4, 1936; Manti, May 7, 1927; Mapleton Bench, May 10, 1936; Moroni, May 7, 1927; Park Valley, May 24, 1930; Promontory, May 25, 1927; Plain City, May 11, 1928; Rattle Snake Pass, May 25, 1927; Snowville, May 25, 1927; Salt Lake City, June 5, 1927, and April 25, 1936; Spring City, May 7, 1927, in Utah. Also Jackson Hole, Wyoming, June 12, 1936. *Alate vivipara* were collected at Beaver Dam, June 3, 1927; Levan, May 13, 1936; Park City, June 15, 1927; Hardup, June 9, 1930, in Utah.

***Pseudoepameibaphis essigi* new species**

Apterous vivipara.—Whitish-yellow to orange-green covered with numerous blunt to fan-shaped hairs which are 0.024 to 0.038 mm. long on the abdomen and 0.034 to 0.049 mm. long on the vertex; body small, 0.75 to 1.0 mm. long; antennæ 0.42 to 0.63 mm. long, pale, except unguis which is slightly dusky; antennal III, 0.063 to 0.089; IV, 0.045 to 0.086; V, 0.07 to 0.096; VI, 0.06 to 0.095 + 0.13 to 0.173; rostrum acute, scarcely attaining 3rd coxæ; rostral IV +

V needle-like, 0.08 to 0.1; hind tibiae 0.27 to 0.376 mm. long and bearing flattened to fan-shaped hairs 0.03 to 0.038 mm. long on the outer side and blunt to pointed hairs on the inner side 0.02 to 0.026 mm. long; cornicles pale, 0.12 to 0.17 mm. long; cauda pale, 0.069 to 0.086 mm. long.

Taxonomy.—*P. essigi* differs from *P. tridentatae* in being noticeably smaller, having stouter and more numerous hairs, in having the unguis 2 or more times longer than III, and in having the outer tibial hairs shorter and stouter. *P. essigi* differs from *P. glauca* in being much smaller, having stouter and more numerous hairs, tibiae more than twice unguis; antennal V longer than IV, usually longer than III; and in having shorter and stouter outer tibial hairs. *P. essigi* has been collected very frequently upon the same plant with *Flabellomicrosiphum tridentatae* (Wilson).

Collections.—All collections were made on *Artemisia*, the usual species being *tridentatae*. Type locality, 3 miles southwest of Lampo, August 1, 1936 (Knowlton::Smith); Amalga, October 4, 1927 (Knowlton); Bear River City, September 11 and 25, 1926 (Knowlton); Beaver, August 8, 1936 (Knowlton::Smith); Bert, August 1, 1936 (Knowlton::Smith); Blue Creek, August 1, 1936 (Knowlton::Smith); Bryce Canyon, August 10, 1936 (Knowlton::Smith); Bryce Canyon, August 10, 1936 (Knowlton::Smith); Cornish, August 9, 1927 (Knowlton); Grouse Creek, August 13, 1932 (Knowlton); Howell, June 17, 1930 (Knowlton), and August 1, 1936 (Knowlton::Smith); Junction Valley, August 13, 1932 (Knowlton); Laketown, July 5, 1935; Levan, August 7, 1936 (Knowlton::Smith); Nephi, August 7, 1936 (Knowlton::Smith); Orton, August 10, 1936 (Knowlton::Smith); Parowan, August 8, 1936 (Knowlton::Smith); Portage, August 20, 1927 (Knowlton); Promontory, August 1, 1936 (Knowlton::Smith); Rattle Snake Pass, August 2, 1932 (Knowlton); Thatcher, August 1, 1936 (Knowlton::Smith); Themonton, September 25, and August 28, 1926 (Knowlton); Tropic, August 10, 1936 (Knowlton::Smith); in Utah. Also collected at Palisades, Colorado, August 24, 1935 (Knowlton) and at Strevell, Idaho, August 25, 1932 (Knowlton).

Type slide in the U. S. National Museum. Paratypes in collections of writers.

Pseudæpameibaphis glauca G. and P.

Gillette and Palmer, Ann. Ent. Amer. 25: 145-146, 1932.

Apterous vivipara.—Body 1 to 1.4 mm. long to base of cauda and bearing numerous blunt to flattened hairs 0.038 to 0.06 mm. long on the abdomen; hairs on vertex 0.045 to 0.069; antennæ 0.66 to 1.11; antennal III, 0.11 to 0.19; IV, 0.1 to 0.18; V, 0.1 to 0.17; VI, 0.08 to 0.11 + 0.19 to 0.36 mm. long; rostrum nearly attaining third coxæ; rostral IV + V needle-like at tip and 0.12 to 0.14 mm. long; tibial hairs pointed to blunt on the outer side and 0.053 to 0.065; tibial hairs on the inner side pointed and 0.02 to 0.032 mm. long; hind tibiæ 0.38 to 0.6; hind tarsi 0.09 to 0.125; cornicles pale, 0.235 to 0.34; cauda 0.08 to 0.125 mm.

Alate vivipara.—Body 0.92 to 1.4 mm. long to base of cauda; antennæ 1.1 to 1.3; antennal III, 0.2 to 0.28 mm. long and bearing 5 to 8 sensoria; IV 0.2 to 0.23; V, 0.19 to 0.22; VI, 0.11 to 0.125 + 0.36 to 0.42; rostrum attaining 2d coxæ; rostral IV + V, 0.125 to 0.14; hind tibiæ 0.64 to 0.74; hind tarsi, 0.11 to 0.14; cornicles 0.26 to 0.28; cauda 0.078 to 0.094 mm. long.

Collections.—All collections were on *Artemisia*, the usual species being *tridentata*. Ash Creek Canyon, August 9, 1936; Beaver Dam, June 7, 1932; Mouth Big Cottonwood Canyon, July 10, August 5, 1936, and August 22, 1935; Brigham City, June 17, and July 19, 1927, and July 2, 1936; Cache Junction, May 17, 1927; Collinston, April 28, 1927; Cornish, June 27, 1935; Deweyville, April 28, 1927; Dry Lake, August 10, 1927; Garland, August 1, 1936; Granite, July 15, 1936; Green Canyon, July 15, 1936; Hillsdale, August 10, 1936; Hobbles Creek, June 24, 1936, July 15, 1936; Honeyville, April 28, May 17, June 17, and 21, July 19, 1927; Laketown, August 16, 1927; Logan Canyon, August 20, 1925; Maple Canyon, June 7, 1935; Mantua, June 26, 1936; Mueller's Park, July 2, 1935; Newton, October 9, 1927; Ogden, August 12, 1936; Payson, August 7, 1936; Sardine Canyon, July 10, 1935, June 26 and July 2, 1936; Scipio, July 7, 1925; Summit, Iron County, May 2, 1934, in Utah. Also collected at Steamboat Springs, August 18, 1935; Pingree Park, August 21, 1935; and Kremling, August 24, 1935, in Colorado. In Idaho at Emigration Canyon, August 16, 1927; Mink Creek, June 27, 1936; Rexburg, June 16 and 23, 1935; Riverdale, July 24, 1936; Upper

Sand Creek, June 13, 1936; and Winder, June 9, 1935. In Wyoming at Afton, Alpine, and Etna, July 19, 1936; Fishing Bridge, Yellowstone National Park, July 18, 1936. In Montana at Crown Springs, Fort Ellis and Livingston, July 17, 1936; 10 miles southwest of Nehart, June 11, 1936; and Yanky Jim Canyon, July 17, 1936. *Alate vivipara* were collected at Brigham City, June 17, 1927; Dry Lake, August 19, 1927; Honeyville, June 17 and 21, 1927, in Utah.

***Pseudoepameibaphis xenotrichis* new species**

Apterous vivipara.—Greenish overcast with whitish; body 1.0 to 1.2 mm. long to base of cauda and bearing numerous flattened to fan-shaped hairs 0.024 to 0.04 mm. long on the abdomen; hairs on the vertex 0.04 to 0.05; antennæ 0.5 to 0.61; antennal III, 0.09 to 0.11; IV, 0.07 to 0.08; V, 0.09 to 0.1; VI, 0.075 to 0.08+0.13 to 0.15; rostrum surpassing second coxæ; rostral IV plus V, 0.094; tibial hairs flattened to slightly fan-shaped on the outer side and 0.024 to 0.035 mm. long; on the inner side pointed and 0.024; hind tibiæ 0.35 to 0.41; hind tarsi 0.08 to 0.095; cornicles 0.26 to 0.34; cauda 0.07 to 0.08 mm. long.

Taxonomy.—*P. xenotrichis* differs from *P. tridentata*, *P. essigi* and *P. glauca* in having more numerous hairs and in having the hairs much more fan-shaped on the body and the outer side of the tibiæ; in having the eighth abdominal segment superimposed over the cauda.

Collections.—On *Artemisia tridentata* at Brigham Canyon (type locality); Perry, and Sardine Canyon, July 8, 1933, in Utah (Knowlton).

Type slide in the U. S. National Museum. Paratypes in collections of writers.

***Pseudoepameibaphis zavillis* new species**

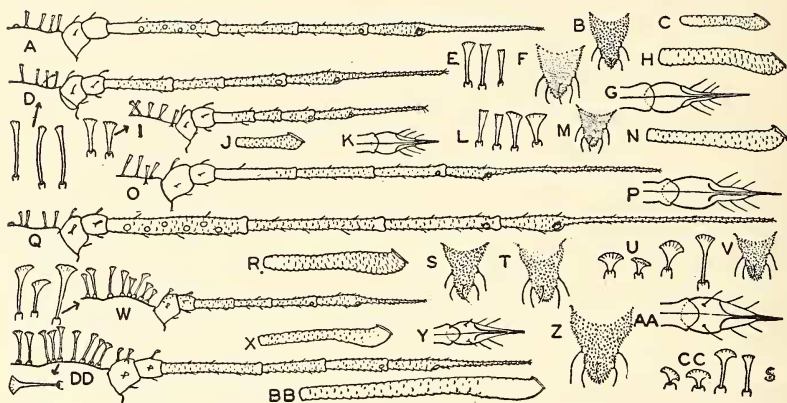
Apterous vivipara.—Greenish-pulverulent, body 1.5 to 1.75 mm. long to base of cauda and bearing numerous flattened to fan-shaped hairs 0.024 to 0.05 mm. long on the abdomen; hairs on the vertex 0.056 to 0.065; antennæ 0.75 to 0.85; antennal III, 0.14 to 0.19; IV, 0.10 to 0.12; V, 0.12; VI, 0.09 to 0.11 plus 0.16 to 0.18; rostrum surpassing second coxae; rostral IV plus V needle-like, 0.1 to 0.12; tibial hairs flattened to slightly fan-shaped on the outer side and 0.024 to 0.038 mm. long; on the inner side pointed and 0.023 to 0.031; hind tibiæ 0.5 to 0.56; hind tarsi 0.1 to 0.11; cornicles pale, 0.42 to 0.47; cauda 0.125 to 0.15 mm. long.

Taxonomy.—*P. zavillis* differs from *P. tridentata*, *P. essigi* and *P. glauca* in having hairs more numerous and much more fan-shaped; and in having the outer tibial hairs flatter. *P. zavillis* differs from *P. xenotrichis* in having base

of antennal VI shorter than antennal IV; antennal IV longer than the hind tarsi; rostral IV plus V shorter than the cauda; and in not having the VIII abdominal segment superimposed on the cauda.

Collections.—On *Artemisia tridentata* at Jackson Hole, Wyoming, June 12, 1936 (Crystle K. Smith: C. F. Smith).

Type in the collection of the senior author.



Pseudoepameibaphis tridentatae (Wilson). Alate, A-C; apterous, D-H; E, body hairs. *P. essigi*, n. sp., apterous, I-M; L, body hairs. *P. glauca*, apterous, N-P, T; alate, Q-S. *P. xenotrichis* n. sp., apterous, U-Y; U, body hairs. *P. zavillis* n. sp., apterous, Z-DD; CC, body hairs.